Canadian Blood Services
Alberta/NWT Region

Directory of Services

Effective Date: 01 March 2010

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INTRODUCTION

Canadian Blood Services (CBS), Alberta/NWT region supplies blood and blood products to hospitals in Alberta, Northwest Territories, Lloydminster (Saskatchewan), and some hospitals in both northeastern and southeastern British Columbia. (See map at the end of this section.) Selected testing services are also offered as required. (Please see specific sections for details.)

This Directory has been written to explain the services provided. It includes descriptions of the services and how to access them. The Directory is reviewed annually and any updated sections are sent after each review is done or as changes occur to a program or procedure.

Hospitals that transfuse blood and blood products should have copies of the most current editions of the 'Circular of Information for the Use of Human Blood and Blood Components' and the 'Clinical Guide to Transfusion' published by Canadian Blood Services. For copies of those publications, and/or additional copies of this directory, contact the Product Distribution department or the Hospital Liaison Specialist.

DISCLAIMER

This Directory of Services is intended for information purposes only. Hospitals and physicians are responsible for ensuring they have the most up-to-date information when making decisions for their patients. This manual is not intended to be a replacement for independent physician judgement.

This manual cannot be interpreted in whole or in part as an expressed or implied warranty of the safety of the blood and blood products described herein even when used for their intended purpose.

Canadian Blood Services does not take any responsibility for the correct interpretation and understanding by the hospital staff of the information provided.

CUSTOMER SERVICE

Communication to Customers

Customer Letters - are distributed as required by Canadian Blood Services to keep hospital customers up-to-date on issues that will have an impact on them.

Plasma Protein Products Updates - are distributed bi-weekly by Canadian Blood Services to inform hospitals of current inventories of plasma protein products. The *Actual Coverage* reflects the total inventories held by both Canadian Blood Services and HemaQuebec (HQ). The *Target Coverage* represents the desired coverage levels based on risk and supply factors specific to each product. Factors such as availability of product in the global market, licensing issues, manufacturing problems and product recalls/withdrawals all impact on the ability to attain *Target Coverage*. (Note: Only the latest copy of the Plasma Products update should be kept.)

Websites – CBS maintains two public websites:

www.blood.ca

This site is intended to provide information about Canadian Blood Services for the general public, for donors and for hospitals. The 'Hospitals' section includes Customer Letters, hospital-related media releases, plasma products information, a link to the Transfusion Medicine website, and important Canadian Blood Services contact information. Refer to this website for the most up-to-date contact information for the Calgary and Edmonton CBS sites.

www.transfusionmedicine.ca

This site has is an educational tool for professionals involved in transfusion medicine. It was launched December 17, 2004 and takes a 'vein to vein' approach. This site covers all aspects of blood transfusion from the donation experience to the transfusion of blood on the hospital unit, and, finally, to management of complications of transfusion. The site is also used to share information about new CBS initiatives. In many cases, tools are provided to assist hospitals in managing the impact of these initiatives in their sites.

Customer Meetings

Canadian Blood Services holds regular meetings to provide hospital customers with an opportunity to discuss issues and exchange ideas to improve the services that Canadian Blood Services and hospitals provide to patients.

Customer Issues

Concerns or problems with any of the services offered by Canadian Blood Services should be communicated back so that appropriate action can be taken to resolve the issue and prevent reoccurrence. Follow-up is usually done with the customer who initiated the complaint and the action taken is explained. *Calgary customers please submit completed form LMF:022 Hospital Customer Feedback Alberta/NWT*

INTRODUCTION

Canadian Blood Services (CBS) provides blood collection services in most regions of Canada, with Hema-Quebec providing these services in Quebec. All prospective donors are screened to minimize the potential for transmission of infectious disease. Once the blood has been collected, every single donation goes through extensive testing before blood is issued to the hospitals for use. Any donated blood which does not pass the testing procedures is destroyed. Canadian Blood Services also operates One Match, the stem cell and marrow network for Canada and, as of April 1, 2008, has also taken the lead role in establishing a national organ and tissue donor registry.

The Donor and Clinic Services department at Canadian Blood Services oversees the recruitment, retention and recognition of blood donors and manages the collection of whole blood and apheresis products. In Alberta, Canadian Blood Services operates permanent collection sites in Edmonton, Calgary, Lethbridge and Red Deer, and mobile donor clinics operate throughout the province. Donors are urged to make an appointment before coming to donate.

Allogeneic blood donations are collected from generous volunteer donors. Donors are eligible to donate whole blood every 56 days, and can give blood components collected by apheresis, such as platelets, more frequently. For more information on donating, visit the CBS website at www.blood.ca or call 1 888 2 DONATE (1-888-236-6283).

Autologous blood donations are collected from individuals for their own personal use. Patients who may be considered for entry into the program include those who are undergoing scheduled elective surgery who are likely to require 2-4 units of blood during the procedure. To qualify, the patient must be well enough to tolerate the withdrawal of the required amount of blood. A maximum of four units can be collected, one week apart, with the last appointment being at least one week prior to the scheduled surgery. Autologous donations will only be used for the donating patient; there is no crossover into the allogeneic inventory. **Like all red blood cell transfusions, a crossmatch is required prior to issue of autologous units.**

For collection of autologous donations by CBS, the patient's physician's office must contact the Autologous/Directed Coordinator (phone # below) to request an Autologous package which provides further information, including program qualification requirements, and the necessary forms. Once the physician has completed and submitted the required forms, the patient may make appointments to donate at the permanent donor clinic site.

Some regions have their own autologous or perioperative blood conservation programs. In many cases, physicians should contact those programs first.

Directed blood donations are offered only in specific and limited cases. Directed donations may be given only by parents or legal guardians to their minor children, according to current approved CBS procedures. While there is no evidence that these donations are safer than those from volunteer donors, this service is offered in order to decrease the psychological stress for parents whose children require a transfusion. Directed donations will only be used for the designated patient; there is no crossover into the allogeneic inventory.

Prior to the collection of any directed donation, the patient's physician's office must contact the Autologous/Directed Coordinator (phone # below) to request a Directed Donation package. This package provides further information, including program qualification requirements, and the necessary forms. Once the physician has completed and submitted the required forms, the parent/legal guardian may make

appointments to donate at the permanent donor clinic site.

The parent/legal guardian donor must be tested to ensure their blood will be compatible with the child's blood. The physician must order pre-donation testing which is done by the requesting hospital. (Note: if Canadian Blood Services performs the hospital pre-transfusion testing, the samples would be sent to CBS. See requirements for "Crossmatch" in Section 8 – Transfusion Medicine Services).

For information on Autologous/Directed donation, please call:

- ***In Calgary: 403-944-4710 (Peri-operative Blood Conservation Program, FMC)***
- ***In Edmonton: 780-431-8753***

One Match Stem Cell and Marrow Network

One Match is responsible for finding matched, unrelated donors for patients who require bone marrow or stem cell transplants. For most of these patients, a transplant is the last and best chance for recovery from a serious illness such as leukemia or aplastic anemia.

One Match is able to do its work thanks to more than 230,000 Canadians who have volunteered to donate bone marrow or stem cells to anyone who might need them. Canadian Blood Services maintains a database of tissue typing results of these prospective donors. Whenever a patient requires a bone marrow transplant, Canadian Blood Services is able to search its database to identify potential matching donors.

Canadian Blood Services can also search more than seven million donors on registries in other countries through a cooperative arrangement known as Bone Marrow Donors Worldwide. By agreeing to pool their donor data, registries have significantly increased the odds of being able to find a matching donor for any patient in any participating country.

Who can donate bone marrow and stem cells?

One Match welcomes enquiries from anyone interested in donating bone marrow. Because a person's best chance of finding a matching donor is within his or her own ethnic group, Canadian Blood Services is interested in increasing the ethnic diversity of the database by attracting donors from Canada's many ethnic communities.

To join One Match, a person must be:

-aged 17 to 50;
-healthy;
-willing to donate bone marrow or stem calls to anyone in need of a transplant.

People wishing to join the One Match can obtain a donor information package by calling the nearest Donor Centre, 1-888-2 DONATE or by visiting the One Match web site at *www.onematch.ca*. The process involves reading an information booklet, completing a health assessment questionnaire and consent form, and undergoing a DNA typing test.

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INTRODUCTION

Canadian Blood Services has Product Distribution Laboratory areas located in both Edmonton and Calgary, as well as a Transfusion Medicine Services Laboratory located in Edmonton (serving some hospitals throughout the province). Hospitals may be serviced by one or both of the CBS laboratory areas, depending on the service(s) they require.
(Note: Each area is staffed independently. Staff members do not provide cross-coverage for the other area.)

Product Distribution Laboratories

- Distribute blood components to hospitals that perform their own routine crossmatches
- Distribute plasma protein products to all hospitals and bleeding disorder (AKA Hemophilia) clinics
- Contact information & hours of service:

CALGARY*		***Hours***
PHONE	**403-410-2737**	**Mon-Fri 0700-1500**
FAX	**403-410-2791**	**24h**
CELL*	**403-589-3399**	**Mon-Fri 1500-0700 weekends/holidays 24h**

**Staff on site M-F 0700-2100, Sat 0700-1500, Sun 0800-1600*

EDMONTON		***Hours***
PHONE	**780-431-0777**	**24h**
FAX	**780-433-4478**	**24h**

Transfusion Medicine Services (TMS) Laboratory

- Distributes blood components to hospitals that do not perform their own routine crossmatches, and provides crossmatching services to these hospitals. Also provides referral services to some hospitals in the region that perform their own crossmatching. (**Please refer to Section 7, "Transfusion Medicine Services" for more information**.)
- Contact information & hours of service:

PHONE*	**780-431-8765**	**24h***
FAX	**780-431-8779**	**24h**
CELL	**780-231-9273**	**For emergency use only**

**Staff on site 0700h to 2400h*

Timelines for Shipment of Orders from CBS

When placing an order, please consider the time that it takes to prepare the order, package it for shipment and deliver it to the commercial carrier, as well as commercial carrier delivery frequency and times in your community and/or for your location. We request that orders be placed a minimum of four hours prior to the scheduled transportation departure time. For scheduled CBS Transport bus runs, orders should be placed four hours prior to the scheduled CBS Transport departure time.

Inventory Management

1. Hospital Inventory Levels

Blood component inventory at each facility is determined based on hospital size, patient population, surgery complexity level, blood utilization and transportation restrictions. Facilities that wish to change their inventory levels are asked to contact the Hospital Liaison Specialist.

For smaller facilities required to maintain red blood cells for emergency situations, O positive red blood cell units will usually be issued. O negative units *may* be issued if the facility has demonstrated that it is able to recycle unused in-date units to a larger facility.

Physicians must be aware that there are risks in transfusing unmatched blood to patients. For example, there is a risk of a hemolytic transfusion reaction if the patient has a red blood cell antibody that recognizes a red cell antigen present in the unmatched blood. There is also the risk of stimulating the production of anti-D in an Rh negative patient when Rh positive units are transfused. For a female with child-bearing potential, future pregnancies may be at risk of Rh hemolytic disease of the newborn if the patient develops an anti-D. Therefore, unmatched stock should be reserved for clinical situations where the urgency of the transfusion requirement justifies the increased risk. Consult with the Medical Director or your consultant pathologist if required.

At this time, Canadian Blood Services cannot accept returned hospital stock back into our inventory due to Health Canada regulations. Some regions do move blood units around within their region to try to minimize the number outdating. Contact your regional hub hospital and/or the Hospital Liaison Specialist if you would like more information.

2. Centre Inventory Levels

Canadian Blood Services manages its inventory on a national level so that blood is moved around the country to ensure all regions are adequately stocked. CBS attempts to maintain blood inventory levels at or above optimum levels so that all orders from hospitals may be filled. However, decreases in donations or increased utilization can cause inventory levels to drop below optimum levels.

3. Disaster Coordination Plan

If a disaster occurs, Canadian Blood Services staff will coordinate delivery of blood components to any affected hospitals. In most cases, blood inventory levels will be sufficient to meet the needs of hospitals expecting casualties. Facilities are requested to immediately notify Product Distribution staff at Canadian Blood Services if they are expecting casualties related to any disaster. If the CBS phone system is overwhelmed by calls, hospital staff may use cell phone numbers.

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Requesting Blood Components from Product Distribution*

Requisitions and Forms

A list of forms/requisitions is included at the back of this Directory.

Master copies of most forms are available on-line at www.blood.ca under the "Hospitals" Section. The user name and password required to access the forms section are as follows:

User Name: **Hospital Customer**
Password: **Heforms001**

Routine Requests

***Requisition** - Use F040547 – Blood Component Order Form*

- Complete the request form with hospital name, contact name, number of blood components required and urgency (clearly indicate special requirements i.e. irradiated, anti-CMV negative).
- Fax completed form.
- In addition to faxing, phone STAT orders.
- Phone and fax all orders placed outside regular hours.

**See Section 7, Page 2 for information about requesting blood components from TMS Lab.*

Special Requests

***Requisition** – Use 1000103465 – Special Request Order Form*

- CMV negative – We routinely test a significant proportion of whole blood donors for the production of pooled platelets and RBCs, as well as all apheresis platelet donors, for CMV status. Availability of CMV negative products is proportional to donations collected and can be limited. CMV negative products are provided upon request; however, because of this limited availability, they should be requested for indicated uses only.
- Irradiated - Available for cellular components (red blood cells and platelets) for appropriate indications.
- Apheresis Platelets – This form is used to request product for patients who require non-HLA matched apheresis platelets. Apheresis platelets may also be issued in place of pooled platelets to facilitate utilization of these products.
- Washed RBC - Rarely required for prevention of febrile transfusion reactions, as all red blood cells are leukoreduced by filtration. May be required if patient is IgA deficient and has anti-IgA antibodies.
- Rare Red Blood Cells – As much notice as possible is required, as blood may be difficult or impossible to find in the current inventory. Canadian Blood Services maintains a stored inventory of rare units; however, they may be held at CBS sites elsewhere in the country. In some cases, Canadian Blood Services may need to ask specific donors to come and donate, and additional time is required to complete testing of these units. Rare units include those that are negative for a high incidence antigen and those that are negative for a combination of antigens which would be difficult to find due to very low frequency within the normal donor population (i.e. R2R2, Fy(b-), Jk(a-), s-). Other alternatives such as autologous donation or treatment with erythropoietin may need to be considered.
- IgA Deficient Plasma – As much notice as possible is required as there is a limited inventory available in Canada.

Requesting HLA-matched Apheresis Platelet products

Canadian Blood Services is able to provide matched platelet products for specific patients. Contact your local Product Distribution or Transfusion Medicine Services laboratory to obtain information about requesting these products.

Requesting Plasma Protein Products (ie. Albumin, IGIV, etc.)

Requisition *– Use Plasma Proteins Order Form*

Canadian Blood Services carries products from various manufacturers that may change from time to time. Customer letters are sent out periodically by Canadian Blood Services to give updates on the status of various plasma protein products. Questions about plasma protein products should be directed to our Product Distribution staff. As the Plasma Protein Product mix changes, the order form will be updated to reflect the products currently available. Notification of these changes will be sent out to customers via e-mail and updated forms will be available on www.blood.ca.

Requesting 'Special Access Program' Products

Several plasma protein products are not licensed for routine use in Canada and require approval by Health Canada's Special Access Program (SAP) prior to release. A list of products requiring approval is provided in the form of a Customer Letter, and is available on our website. This list is updated by Health Canada on a regular basis. Health Canada requires the ordering physician's license number when placing the order. If approved, Health Canada then provides authorization to Canadian Blood Services to release the product.

Special Access Program contact information can be found at the bottom of Plasma Proteins Order Form.

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INTRODUCTION

Canadian Blood Services staff pack blood components and plasma protein products for shipping to hospitals according to very specific procedures. Hospital staff members are responsible for inspecting incoming shipments and ensuring accurate recordkeeping of receipt and disposition of all blood components and plasma protein products.

Modes of Shipment

Canadian Blood Services uses their own drivers for routine shipments within the cities of Edmonton, Red Deer, Calgary, and Lethbridge. After hours, cabs are used within Edmonton and Calgary. Outside of Edmonton and Calgary, shipments may be sent by Greyhound bus or by air. Hospitals may arrange for a courier service to pick up shipments of blood and deliver samples for testing. For bus and air shipments, it is the hospital's responsibility to make arrangements to pick up the blood shipment from the receiving bus depot or airport. *Whenever a shipment does not arrive as expected, please contact Canadian Blood Services staff immediately so the shipment can be traced and accurate records of shipping/transport problems can be kept and trends followed.*

In case of emergencies where blood is required sooner than the normal means of transport, the hospital may make other arrangements to pick up a shipment from Canadian Blood Services. Hospitals may arrange for a cab, family member or private courier to deliver the blood shipment. Hospitals must make Canadian Blood Services staff aware of who they have authorized to pick up the blood shipment. Any costs associated with these shipments are the responsibility of the requesting hospital.

Inspection of Shipment

1. *Check for tamper-evident device* - Shipments packed in Canadian Blood Services shipping boxes will have a plastic closure which acts as a tamper-evident device that must be removed to open the container. If this device is missing or is not intact when received by hospital staff, the shipment contents should not be used.

2. *Check shipping condition of components/products* - Blood components and plasma protein products are packed for shipment to maintain the required shipping temperature. Gel packs are used for room temperature shipments; ice packs or combination of gel packs and ice packs are used for refrigerated shipments; dry ice is used for frozen shipments. Check that shipment contents are in the appropriate temperature range when received. Packing configurations should maintain appropriate conditions for 24 hours.

3. *Check each component/product.* Perform a visual inspection of each component. You may refer to the Canadian Blood Services Visual Assessment Guide fir inspection criteria. If any concerns are noted, consult with a supervisor and report any issues to CBS. Check for breakage or leaks and check expiry date (and time, if provided) to determine if component/product is in-date. If component expiry is a day date (e.g. 23 Sep 2002), the component expires at midnight of that day. If the expiry is only a month date (e.g. Feb 2004), the product expires at midnight of the last day of the month.

4. *Ensure all information on documentation (issue vouchers/packing slips) is correct* - Compare the information on the issue voucher/packing slip to the components or products to ensure component/product type and description, unit/lot numbers and quantities match. Ensure components/products received match the request. <u>If the information on the documentation is incorrect, and/or does not match the request, contact CBS to ensure continued traceability</u>.

5. *Document the date and time received and sign the issue vouchers/packing slips*. Return one copy of the plasma protein product packing slip to Canadian Blood Services. Notify CBS staff of any problems or errors with shipping conditions, order amounts, or component/product condition **immediately**.

6. *Store components/products in appropriate location and conditions.* If there are any problems, shipment contents must be quarantined at appropriate storage temperatures until issue can be resolved and appropriate disposition of units can be determined. Consult with your Laboratory Director/Supervisor, or Medical Director.

7. *Return shipping boxes to Canadian Blood Services.* Indicate contents on the outside of box - either 'Empty' or, if specimens are being sent in the box, 'Specimens Enclosed'. Hospitals are responsible for shipping costs related to return of boxes. Empty boxes may be shipped using mail, courier, bus or air services.

Follow-up for Unsuitable Components/Plasma Protein Products

1. *Suspected bacterial contamination* - Notify CBS and return component/product.
2. *Hemolysis* - Place unit upright and allow to settle for at least 24 hours. Observe the plasma/additive supernatant for hemolysis. A clear pale yellow (straw) colour or pink colour is normal. Red supernatant is not acceptable. Notify CBS and return any unacceptable component.
3. *Icteric Units* - Take a sample from bag using aseptic procedure and test for bilirubin. If level exceeds hospital's normal adult bilirubin range, do not use. Notify CBS of any unacceptable component.
4. *Positive DAT with anti-IgG* - Repeat DAT using new segment. If still positive, notify CBS.
5. *Labeling errors, clots, expired or other problem* - Notify CBS and return any unacceptable component/product.

   (Note – For CBS Edmonton customers – include requisition LL4303 Returned Blood Products (PD) or LL4583 TMS Returned Blood Components (TMS) –OR- LL4231 Returned Plasma Protein Products)

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Hospital Documentation and Record Keeping

All blood components and plasma protein products may be subject to recall or to Lookback/Traceback processes. Therefore, hospitals must maintain a record of all components/products as they are received, issued, transfused, returned and/or discarded.

For blood components, the donation number, collection date, expiry date and the component name must be recorded. Hospitals may also wish to record the blood group of the unit, as this is not part of the unit number.

For plasma protein products, the lot number and product name must be recorded.

Hospitals may maintain this information on their information system or in a manual log. As per the Standards for Hospital Transfusion Services of the Canadian Society for Transfusion Medicine (CSTM) which is the standard used by the College of Physicians and Surgeons of Alberta, issue vouchers/packing slips and records of issue, transfusion, return or discard must be retained indefinitely.

Month End Reporting

By the 10th of each month, hospitals are asked to submit a report to CBS regarding the disposition and utilization of all blood components. This report assists in tracking blood utilization or disposition.

It is preferred that hospitals submit their own data directly, via E-form. However, if the hospital does not have the capability to submit electronically, submissions can be faxed to the Hospital Liaison Specialist.

Canadian Blood Services is pleased to provide a quarterly Hospital Blood Component Disposition Report Set. The report set is created from the hospital's blood component disposition data, submitted to Canadian Blood Services on a monthly basis. The report set is valuable in monitoring a hospital's transfusion, outdate, and discard trends.

An Inventory Management Best Practices document is also available. The document contains best practices and suggested reading to assist with efforts to improve hospital blood component inventory management, and reduce waste in the overall blood system. Contact the Hospital Liaison Specialist to obtain a copy.

The Report Set will be automatically distributed by email on a quarterly basis according to the schedule below:

Q1 – August 1	Q2 – November 1	Q3 – February 1	Q4 – May 1

Please consult with the Hospital Liaison Specialist for more information and instructions on this process.

In addition to the month end report, hospitals that received stock and crossmatched units from the Transfusion Medicine Services Laboratory are asked to return the component tags to CBS with the disposition Information to ensure traceability. If units are transfused to a different patient than was originally intended, transferred to a different facility or discarded, please complete form LL4635, Hospital Disposition of Blood Components and send to Transfusion Medicine Services Laboratory.

BLOOD COMPONENT LABELS

In May 2009, Canadian Blood Services implemented the ISBT128 standard for labelling blood and blood components.

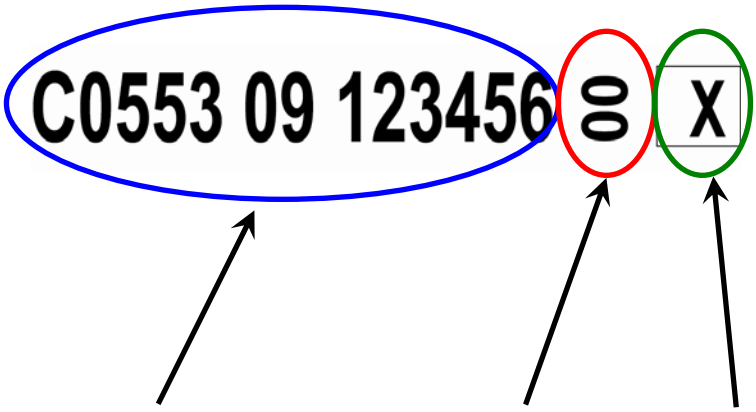
Visit www.transfusionmedicine.ca
for more information

Canadian Blood Services
it's in you to give

Refer to Canadian Blood Services Customer Letters 2008-28, 2009-08 and 2009-13 for more information.

Canadian Blood Services
Société canadienne du sang

ISBT 128 DONATION NUMBER FORMAT



13 Character ISBT 128 Donation Number	Process Control Flag Characters	Manual Check Character
• The 13 character ISBT 128 uniquely identifies the donation • All 13 characters must be recorded for traceability of the donation	• The 2 digit process control flag characters are used by Canadian Blood Services. • The flag characters are not part of the donation number	• The manual check character is required when a donation number is manually entered into a computer system

TAG EXAMPLES (Note: Not exactly as shown)

Phenotype Tag – Typings Not Confirmed

PHENOTYPE TAG

CANADIAN BLOOD SERVICES SOCIÉTÉ CANADIENNE DU SANG

DONATION NUMBER

DONOR RECORDS INDICATE THAT THIS UNIT IS NEGATIVE FOR THE ENCIRCLED ANTIGENS

C E c e C^W M N S s P Le^a Le^b K Lu^a Fy^a Fy^b Jk^a Jk^b Other:_____

NOTE: Phenotype **MUST** be confirmed prior to transfusion. L040995 2002-07-02

Canadian Blood Services
Société canadienne du sang

TAG EXAMPLES *cont'd* (Note: Not exactly as shown)

Phenotype Tag – Typings Confirmed

PHENOTYPE TAG

CANADIAN BLOOD SERVICES / SOCIÉTÉ CANADIENNE DU SANG

DONATION NUMBER

THIS DONATION HAS BEEN TESTED AND FOUND TO BE NEGATIVE FOR THE ENCIRCLED ANTIGENS.

C E c e C^W M N S s P Le^a Le^b K Lu^a Fy^a Fy^b Jk^a Jk^b Other:_____

NOTE: Please crossmatch with a fresh specimen. L040983 2002-07-02

Autologous Donation Tag

BLOOD FOR AUTOLOGOUS TRANSFUSION

PATIENT/DONOR NAME_____
BIRTH DATE: DD_____ MM_____ YYYY _____ SEX_____
PATIENT/DONOR I.D. NUMBER _____

PLACE DONATION NUMBER HERE

DATE COLLECTED: DD_____ MMM_____
YYYYY_____
SURGEON:_____ DATE OF SURGERY
_____
HOSPITAL: _____
PATIENT/DONOR SIGNATURE

Directed Donation Tag

DIRECTED DONATION BLOOD

PATIENT NAME_____
BIRTH DATE: DD_____ MM_____ YYYY _____ SEX_____
PATIENT I.D. NUMBER _____

DONOR NAME: _____

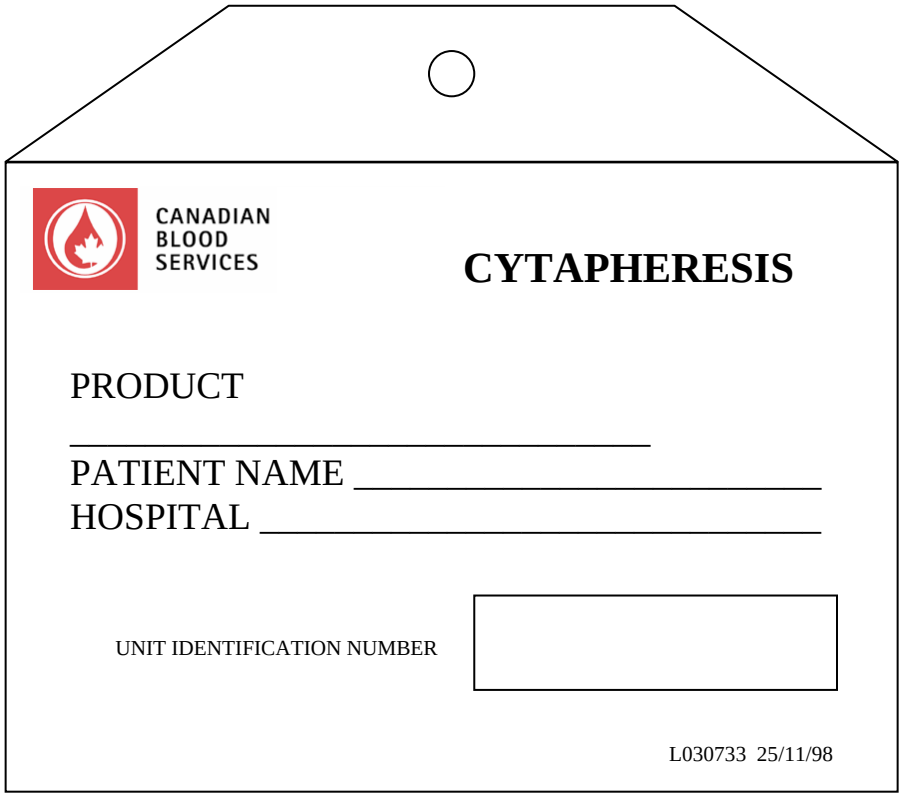
PLACE DONATION NUMBER HERE

DATE COLLECTED: DD_____ MMM_____
YYYYY_____
SURGEON_____ DATE OF SURGERY_____
HOSPITAL _____
DONOR SIGNATURE: _____

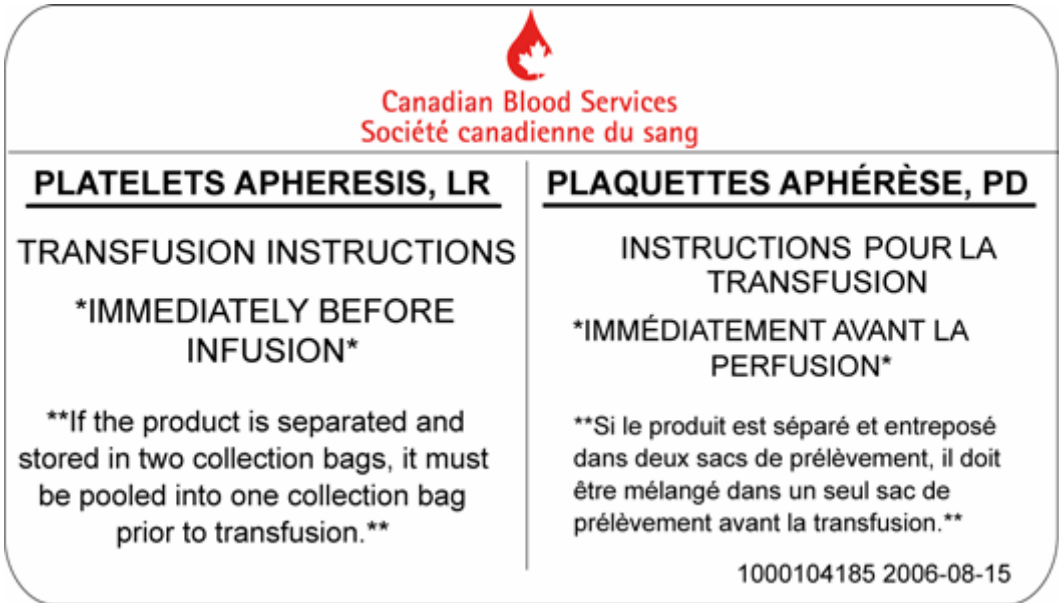
Canadian Blood Services
Société canadienne du sang

TAG EXAMPLES *cont'd* (Note: Not exactly as shown)

Cytapheresis Tag for HLA/HPA-matched Apheresis Platelets



Label for Apheresis Platelets >400 mL


Canadian Blood Services
Société canadienne du sang
PLATELETS APHERESIS, LR
TRANSFUSION INSTRUCTIONS
IMMEDIATELY BEFORE INFUSION
If the product is separated and stored in two collection bags, it must be pooled into one collection bag prior to transfusion.
PLAQUETTES APHÉRÈSE, PD
INSTRUCTIONS POUR LA TRANSFUSION
IMMÉDIATEMENT AVANT LA PERFUSION
Si le produit est séparé et entreposé dans deux sacs de prélèvement, il doit être mélangé dans un seul sac de prélèvement avant la transfusion.
1000104185 2006-08-15

Canadian Blood Services
Société canadienne du sang

ADDITIONAL LABELS/TAGS USED BY TRANSFUSION MEDICINE SERVICES LAB
(Note: Not exactly as shown)

Crossmatch Tag

BLOOD COMPONENTS - Red Blood Cells

Name: _____

PHN: _____

Hospital: _____

● Hospital ID#: _____

Blood Group: ABO _____ Rh_____

Blood Bank Identification No.

Crossmatch expires:
_____
Do not transfuse after this date or more than 96 hours after first unit in series is given.

This component is:

□ COMPATIBLE

□ *INCOMPATIBLE*

□ **UNCROSSMATCHED**

Component Code:
_____

ABO: **Rh:**

Unit Identification

□ _____

T 441 12/2006

CANADIAN BLOOD SERVICES - Edmonton Centre

Blood Components Tag

BLOOD COMPONENTS

Name: _____

PHN: _____

Hospital: _____

● Hospital ID#: _____

Blood Group: ABO _____ Rh_____

Component Code:

□ Platelets _____

□ Plasma _____

□ Cryoprecipitate

Comments:

ABO: **Rh:**

Unit Identification

□ _____

T 442 12/2006

CANADIAN BLOOD SERVICES - Edmonton

ABO (Rh) Confirmed Label

ABO CONFIRMED
Rh of Negative Units Confirmed

Thawed Plasma Component Label

THAWED
Expires: _____
Date/Time
Store at: _____ °C

Canadian Blood Services,

Canadian Blood Services
Société canadienne du sang

INTRODUCTION

Providing safe blood transfusions is the responsibility of many people: physicians, phlebotomists, laboratory technologists, and nurses. Each has a role to play in ensuring that the correct patient receives the appropriate blood component. ***The majority of fatal hemolytic transfusion reactions occur when the wrong blood is administered to a patient.***

The identification of the patient is critical in several steps of the process - collection of the blood sample, testing of the blood sample, identification of the blood component, transfusion of the blood component.

A number of resources are available, and they are listed here.

CANADIAN BLOOD SERVICES RESOURCES

CANADIAN BLOOD SERVICES
Clinical Guide to Transfusion, 4th Edition ©2006, Canadian Blood Services
The previous edition of the *Clinical Guide* was published under the auspices of the Canadian Red Cross Society (CRCS) in 1993. This fourth edition is the result of efforts by CBS to identify the educational needs of health care workers relating to the provision of blood products and transfusion medicine services. The new *Clinical Guide to Transfusion* incorporates important changes in the content and format from that of previous editions. The authors of the various sections of the *Guide* are experts in their fields of endeavour, and they have provided an excellent and very practical summary of our current knowledge of blood components and transfusion medicine practices.

Circular of Information for the Use of Human Blood and Blood Components
The Circular of Information is considered an extension of the blood and component container labels as the space on those labels is very limited. It includes information addressing transfusion of blood components and risks of transfusion. There is also detailed information about each blood component including its actions, indications, contraindications, side effects and hazards, dosage and administration and storage. Information about further processing of blood and blood components is also included.

Copies of the *Clinical Guide to Transfusion* and the *Circulars of Information for the Use of Human Blood and Blood Components* can be requested from either the Hospital Liaison Specialist or the Product Distribution laboratory. They are also available electronically on www.transfusionmedicine.ca.

Websites
CBS maintains two public websites:
www.blood.ca
This site is intended to provide information about Canadian Blood Services for the general public, for donors and for hospitals. The 'Hospitals' section includes Customer Letters, hospital-related media releases, plasma products information, a link to the Transfusion Medicine website, and important CBS contact information.

www.transfusionmedicine.ca
This site is an educational tool for professionals involved in transfusion medicine. It was launched December 17, 2004 and comprises a 'vein to vein' approach. This site covers all aspects of blood transfusion from the donation experience to the transfusion of blood on the hospital ward, and, finally, to management of complications of transfusion. The site is also used to share information about new CBS initiatives. In many cases, tools are provided to assist hospitals in managing the impact of these initiatives in their sites.

Canadian Blood Services
Société canadienne du sang

OTHER RESOURCES

PUBLIC HEALTH AGENCY OF CANADA

Guideline for investigation of suspected transfusion transmitted bacterial contamination (2008)

This supplement includes information on the clinical presentation of suspected bacterial contamination and provides recommendations for bedside and laboratory follow up.

WEBSITE: **www.phac-aspc.gc.ca/publicat/ccdr-rmtc/08vol34/34s1/34s1-eng.php**

CANADIAN MEDICAL ASSOCIATION

Guidelines for Red Blood Cell and Plasma Transfusion for Adults and Children (1997)

This document provides broad guidelines and principles to help physicians, other health care workers and patients make decisions about the appropriateness of red blood cell and plasma transfusion.

WEBSITE: **www.cmaj.ca/cgi/content/full/156/11/DC1**

CANADIAN SOCIETY FOR TRANSFUSION MEDICINE

CSTM Standards

These standards are designed to provide guidelines for the development of policies, processes, and procedures which should be included in the institution's policy and procedure manual. The standards are in accordance with CSA Standard Z902, "Blood and Blood Components". Formerly, the CSTM Standards were known as 'Standards for Transfusion Medicine Services'.

WEBSITE: **www.transfusion.ca**
(purchase required to obtain copy of CSTM Standards)

PLASMA PROTEIN PRODUCT MANUFACTURERS

Plasma Protein Product Inserts

Every plasma protein product is issued with a product insert. This is also considered an extension of the plasma protein product label. Information on administration is included in the product insert.

CANADIAN STANDARDS ASSOCIATION

Z902 - Blood and Blood Components

These Canadian standards set out minimum safety requirements for acceptable performance. The requirements are with respect to: donor selection, blood collection, processing, testing, labeling, record keeping, lookback/traceback, recall and storage. It is expected that the implementation and use of the required safety norms will help establish and maintain safe practices and motivate all concerned parties to remain vigilant.

WEBSITE: **www.ShopCSA.ca**
(purchase required to obtain copy of Z902 standards)

NATIONAL ADVISORY COMMITTEE ON BLOOD AND BLOOD PRODUCTS

The National Advisory Committee (NAC) is a Canadian committee of recognized experts in transfusion medicine. The NAC provides medical and technical advice on the utilization management of blood and blood products to the Provincial and Territorial Ministers of Health and to Canadian Blood Services. Guidelines developed by the NAC are available free of charge on their website.

WEBSITE: **www.nacblood.ca**

TOWARDS OPTIMIZED PRACTICE (TOP)

Alberta Clinical Practice Guideline for Red Blood Cell and Plasma Transfusion: A Summary

Patient Information – Transfusion of Blood Products: Commonly Asked Questions

Arising out of the 2003 Master Agreement, the Toward Optimized Practice (TOP) program succeeds the former Alberta Clinical Practice Guidelines program, and maintains and distributes Alberta Clinical Practice Guidelines.

The program is overseen by representatives from each of the four sponsoring bodies:

- Alberta Medical Association
- Alberta Health & Wellness
- Alberta's Regional Health Authorities
- College of Physicians and Surgeons of Alberta

WEBSITE: **www.topalbertadoctors.org**

TRANSFUSION ONTARIO PROGRAMS (TOPs)

About Blood Transfusion - Information for Nurses and Other Health Care Professionals

This booklet was first published in 2004 and can be purchased through the website. Also on the website is a 112 slide Powerpoint presentation that can be downloaded. Transfusion Ontario Programs (TOPs) project is part of the Blood Conservation Program of the Ministry of Health and Long Term Care of Ontario.

WEBSITE: **www.transfusionontario.org**
(membership required to access some areas; membership can be obtained free of charge by healthcare professionals)

SUNNYBROOK AND WOMEN'S COLLEGE HEALTH SCIENCES CENTRE

Bloody Easy 2

Bloody Easy 2 is the second edition of this facility's pocket guide for transfusion medicine. It is an educational tool to assist in providing care to patients covering topics such as: blood transfusions, blood alternatives, and transfusion reactions. An affiliated interactive web-based course is also available.

WEBSITE: **www.sunnybrook.ca/education/transfusion**
(purchase required to obtain copy of Bloody Easy 2)

TRAQ PROGRAM

The TraQ Program promotes quality improvement among transfusion medicine professionals through timely access to and sharing of education and quality management information related to current practices and guidelines in transfusion medicine.

Clinical Transfusion Resource Manual

The Clinical Transfusion Resource Manual (CTRM) provides guidelines, training, and educational material related to the administration of blood and blood products. A video and interactive CD ROM can also be purchased to assist with training of staff.

WEBSITE : **www.traqprogram.ca**

AABB

Standards for Blood Banks and Transfusion Services

These Standards are prepared to maintain and enhance the quality and safety of transfusion and transplantation, and to provide a basis for the Accreditation Program of the Association. The guiding principle of this document is to be consistent with available scientific information while focusing on patient advocacy and optimal care for donors who donate blood and components. The use of these standards should aid materially in developing and maintaining policies, processes, and procedures that will provide safe and effective transfusion and transplantation, as well as a safe work environment for blood bank and transfusion

service personnel.

AABB (cont.)

Technical Manual

The Technical Manual provides in-depth information on quality issues, blood donation and collection, immunologic and genetic principles, blood groups, serological principle and transfusion medicine, clinical considerations in transfusion practice and methods.

Primer for Blood Administration

This primer is an effective training tool and covers diverse activities involved in blood administration such as informed consent, injury prevention, blood issue/reissue, infusion devices, venous access, patient monitoring and transfusion reactions.

WEBSITE: **www.aabb.org**
(paid membership required to access most areas; Primer is free of charge to members, Standards and Technical Manual must be purchased)

Transfusion Reactions

Whenever a patient shows signs of a transfusion reaction, the transfusion must be immediately stopped (IV may be maintained with normal saline) and the attending physician should be notified. Nursing staff must then perform a clerical check to verify that the correct blood component is being given to the intended recipient. Patient identification, the blood component tag, the information on the unit itself should be reviewed to ensure everything matches.

When a minor allergic reaction (rash or urticaria only) has been experienced, the physician may decide to order the administration of an antihistamine to the patient. For all other reactions, a post-transfusion specimen must be collected and submitted to the laboratory for investigation. The first voided urine sample should also be sent to the laboratory for hemoglobin analysis. The implicated unit and administration set and any intravenous solution being administered at the same time should also be returned to the laboratory for investigation. The laboratory will determine if there is a serological reason for the reaction. Further transfusions must be avoided until the reaction investigation is completed and serological reasons for the reaction have been excluded.

Reporting Adverse Transfusion Reactions to Blood and Blood Components

Reporting of adverse reaction data is essential in order to permit rapid and thorough investigation and timely corrective action, if necessary, by Canadian Blood Services. It is also essential for surveillance of the blood system and facilitates the assessment of the quality of patient care and quality of blood and blood products.

The following adverse events related to blood and blood components should be promptly reported to CBS. Any event that is related to a death or suspected bacterial contamination of a product should be reported to CBS immediately (i.e. within 24 hours):

i. All deaths
ii. All serious reactions (immediate threat and/or major deterioration)
   - Major allergic/anaphylactic reaction
   - Acute hemolytic reaction
   - Significant hyperkalemia
   - Delayed *hemolytic* reactions
iii. All of the following reactions regardless of their severity
   - TRALI
   - Graft-versus-Host Disease
   - Post-transfusion purpura
iv. All cases of suspected bacterial contamination and/or positive culture of a component. (CBS should be contacted for any suspicious case of bacterial contamination so that components related to the same donation can be rapidly quarantined or recalled)
v. All post-transfusion infections (i.e. Hepatitis A, Parvovirus B19, Malaria, Chagas, WNV, etc.)
vi. All reactions for which the product quality is doubtful
vii. All unusual reactions (i.e. red eye syndrome, severe hypotensive reactions)
viii. Any other reaction with the potential for permanent disablement or loss of life.

Adverse events such as febrile nonhemolytic transfusion reactions, allergic reactions and delayed serologic reactions would not normally require reporting but should not be excluded if the attending physician feels that the severity of the reaction warrants investigation by the Blood Centre.

Upon occurrence of a serious adverse event as defined above, hospitals should notify CBS (by phone initially, followed up in writing) with as much information as possible. All potentially implicated blood components (including the unit numbers), as much medical information as possible, pre- and post- transfusion test results, and microbiology testing results from blood cultures taken from patients in suspected cases of bacterial contamination is required.
(Note – Edmonton customers only – please use form LL4454 – Report of Serious Adverse Reaction.)

Upon receipt of such notification, CBS will assess the information, recall companion components and defer donors as necessary. Health Canada requires that CBS Head Office advise them within 24 hours of a fatal reaction and as soon as possible (within 15 calendar days) of a serious adverse reaction. To comply with this requirement, hospital should report adverse events immediately to CBS. Health Canada requires reporting of:

a. all serious adverse events
b. events described as a potential risk in the applicable labeling, packaging or Circular of Information.

Reporting of the following post-transfusion infections – Hepatitis C, Hepatitis B, HIV, HTLV-I, HTLV-II and Syphilis, or any other infection - should be done through existing Lookback/Traceback procedures.

Canadian Blood Services
Société canadienne du sang

INTRODUCTION

It is the goal of Canadian Blood Services to provide Canadians with blood components and plasma protein products of consistently high quality. Whenever that quality is questioned, there may be a need to investigate the donors and the components made from the donations. Accurate record keeping by hospitals is critical in order to identify the disposition of each blood component or plasma protein product that is being recalled or investigated. If an apparent transfusion-related infection has occurred, timely reporting and investigation can prevent additional infections from the same source.

Recall/Withdrawal - When blood components or plasma protein products have been identified as not meeting quality standards, the recall/withdrawal procedure is used to retrieve the components/products and/or identify recipients of these components/products. The majority of the retrievals are initiated when a donor phones Canadian Blood Services after donating (e.g., to report that they have come down with an illness); as the result of a transfusion associated adverse reaction (e.g., TRALI reaction); or, in the case of plasma protein products, from a manufacturer's notification.

Recall notifications are done by Product Distribution or Transfusion Medicine Services staff members. Sufficient information to uniquely identify the recalled/withdrawn components/products will be provided. If the components or plasma protein products are in-date, the hospital will be phoned prior to receiving a faxed recall notification. Hospitals are required to confirm receipt of the faxed notification by completing the appropriate section and faxing the form back to CBS. Hospitals should immediately determine the location of the recalled components/products and set aside any that have not yet been transfused. You will be directed to discard or return the components to CBS. The reason for the recall/withdrawal is indicated on the form sent so physicians should be able to determine appropriate action to be taken if the component/product has been transfused.
Form: 1000103659 Notification of Component Recall/Withdrawal

A reply to Canadian Blood Services indicating the disposition of the components or plasma protein products is required by the dates recorded on the form.

Lookback – This procedure is used to identify, notify and test recipients of blood components from donors who test positive for Hepatitis C (HCV), Hepatitis B (HBV) DNA, Human Immunodeficiency Virus (HIV), Human T-Cell Lymphotropic Virus (HTLV), or any other infectious disease determined by CBS medical staff to require a lookback investigation following a previous donation.

Lookback notifications are completed by the CBS Medical Director. Donors are identified as requiring a lookback investigation as a result of current donor testing, testing for a traceback investigation or if reported by the donor, donor's physician or Public Health. Every effort is made to identify and trace components from each donation. Notification will be sent to each hospital that received an implicated component, identifying the component and requesting confirmation of receipt of the lookback notification, identification of the disposition of the component and, if transfused, the follow-up test results of the recipient.

Traceback - This procedure is used to investigate a report of a possible transfusion associated infection in a patient for any disease suspected to be transmitted by a blood transfusion.

The traceback process starts when a suspected case of transfusion-associated infection is reported to the Lookback/Traceback Department in the Medical Office at Canadian Blood Services (Note: suspected cases should be reported as soon as possible). The procedure involves checking the serological status of all donors whose blood donations were transfused to the recipient to determine if the infection could have been transmitted through blood. Any in-date blood components or products from an associated donor who has not been 'cleared' for the transmissible disease will be identified, retrieved and destroyed. This process includes any other donations made before or after the associated donation.

If transfusion history is not provided with the report of the possible transfusion-associated infection, a letter requesting the patient's transfusion history will be sent to the identified transfusing hospital. Upon receipt of this information, Canadian Blood Services staff will proceed with identifying the donors associated with the transfusion(s).

Once the associated donors have been identified, CBS staff will determine the donor's testing status. For a donor to be 'cleared', their donation record is checked to see if they have made a donation that was tested (and negative) for the marker in question at a sufficient period of time after the associated donation. This timeframe is different for each disease marker. Letters will be sent to all associated donors that need to be tested to request blood samples or to request that results be forwarded to Canadian Blood Services. After testing is completed, CBS medical staff will determine if any donors are implicated.

For information on Lookback/Traceback issues, please call:

- ***In Calgary: 403-410-2708***
- ***In Edmonton: 780-431-8712***

Returns- Blood components that are recalled or are found to be defective in some way may be returned to Canadian Blood Services. **Hospitals should contact Product Distribution or Transfusion Medicine Services staff members at Canadian Blood Services whenever they wish to do so**.

Hospital staff members must complete the return form (copies of appropriate forms can be provided by fax if they are not available at the hospital). For recalled blood components or plasma protein products, return of the completed notification form is sufficient. The completed form and the returned component/product should be placed in a shipping container and sent to Canadian Blood Services as soon as possible.

For other returns, please phone and give an explanation of the reason for the return prior to shipping.

NOTE: Due to Health Canada regulations, returned blood components cannot be reissued, so Canadian Blood Services cannot accept returns for redistribution. Plasma protein products that cannot be used may be returned and may be reissued if appropriate storage documentation is provided. However, prior approval from the CBS distribution site must be obtained before commencing with the return.

Canadian Blood Services
Société canadienne du sang

INTRODUCTION

Canadian Blood Services' Transfusion Medicine Services Laboratory in Edmonton provides a variety of services, including perinatal blood group and antibody screen testing, distribution of blood components and crossmatching services to hospitals that do not perform their own crossmatching, antibody investigations, and other services. Please refer to the specific sections in this Directory for details about each.

The Transfusion Medicine Services Laboratory prepares a Perinatal Annual Report that may be of interest to hospitals. Please contact the Hospital Liaison Specialist to obtain a copy.

Submitting Specimens

Forward blood specimens to Canadian Blood Services as soon as possible after collection. For remote locations, avoid shipping specimens on Friday or weekends if transportation cannot be guaranteed. If this is not possible, separate plasma from cells and send both.

Specimen Collection

- Use correct tube type and size (separating gel tubes cannot be used for testing; 13x100mm EDTA collection tubes are available from Canadian Blood Services but smaller tubes are also acceptable for testing)
- Fill tubes completely,
- Label specimen(s) with complete information and ensure it exactly matches requisition,
- Attach labels securely to the specimen tube (avoid label side flaps which can get caught in automated machines)

Packing

- Check that requisition and specimen labelling is complete and matches exactly,
- Contact the receiving department at Canadian Blood Services to inform them that a specimen is being sent (if required),
- If stopper has been removed, secure stopper with parafilm or tape,
- Place specimen in a leak proof secondary container (e.g. ziploc plastic bags with plastic paperwork pouch), one patient's specimen(s) per bag, and requisition in outside pocket,
- Place plastic bag(s) containing specimens in a small sturdy cardboard box or appropriate shipping container. Additional absorbent packing may be added to the package to prevent breakage and to absorb liquid if there is breakage. Use minimum amount of tape when sealing package.
- Label the package with 'Canadian Blood Services' and the specific laboratory department within Canadian Blood Services and the address. If a CBS shipping container is used, please ensure that a label stating 'Specimens Enclosed' is attached to the outside of the container so that it will be opened immediately upon arrival at CBS.
- Greyhound 'Next Bus Out' priority labels may be used on shipping boxes containing samples that require rapid turnaround (i.e., crossmatch or referral specimens)
- Observe all regulations required by the Transportation of Dangerous Goods (TDG) regulations as they pertain to packaging and shipping of specimens classified as infectious substances

Shipping

- All shipments of blood specimens must be prepaid.
- Shipping containers or coolers that the hospital wishes to have returned must be prepaid.

Canadian Blood Services
Société canadienne du sang

Ordering blood components from Transfusion Medicine Services

Use Requisition: LL4584 TMS Request for Blood Components

- Complete the request form with hospital name, contact name, number of blood components required and urgency (clearly indicate special requirements i.e. irradiated, anti-CMV negative).
- Fax completed form.
- In addition to faxing, phone STAT orders to (780)431-8765.
- Phone and fax all orders placed outside regular hours.

Obtaining Supplies From Canadian Blood Services

Collection Tubes

The following collection tubes (for Canadian Blood Services testing *only)* are available from Canadian Blood Services:

- EDTA (purple top) Vacutainer Tubes (7ml)
- Red Top Vacutainer Tubes (10ml) - for cord samples
- Red Top Vacutainer Tubes (7ml) - for donor samples

Requisitions and Forms

A list of forms/requisitions is included at the back of this Directory.

Master copies of most forms are available on-line at www.blood.ca under the "Hospitals" Section. The user name and password required to access the forms section are as follows:

User Name: **Hospital Customer**
Password: **Heforms001**

Forms that are not available on-line can be ordered from Canadian Blood Services.
Use Requisition LL1065 – Supply Order Form – to order specimen tubes and requisitions.

Special Note regarding Prenatal Testing Order Form

Form HS0001-133, "Prenatal Testing – Initial Screening for Pregnant Woman" is available only from Alberta Health Services. See AHS's "Ordering Forms and Publications", next page. Note that this requisition is a two part requisition and includes prenatal screening done by the Provincial Laboratory of Alberta (Microbiology) and by Canadian Blood Services. The requisition is produced and distributed by Alberta Health Services. Because each part of this requisition goes to a separate site, it is critical that both pages be fully completed. Failure to do so could result in testing not being performed.)

Ordering Forms and Publications

New Streamlined Approach

Ordering paper forms and publications from the Government of Alberta has never been easier. It's called one-stop shopping, and it's at your fingertips.

Participating ministries include:

Children's Services; Tourism, Parks, Recreation and Culture; Service Alberta; Health and Wellness; Employment, Immigration and Industry; Justice and Attorney General; Municipal Affairs and Housing; Solicitor General and Public Security; Seniors and Community Supports.

Registering - as easy as 1, 2, 3.

1. Go to the "Resource Room On-Line Forms & Publications Ordering" web page **https://secure5.datagroup.ca/acsc/request_ext.asp**.
2. Provide your contact information, then "**submit**."
3. Within 15 minutes, you will receive an e-mail containing your login ID, password, and the secure website address to access the electronic catalogues through the Data Document Manager (DDM).

Note: You will only have to do this authorization once.

Accessing catalogues

You can now log onto the DDM site with your login ID and password.

Select the items you need by placing your cursor over the "catalogue" tab, selecting the appropriate catalogue, and adding as many items to your shopping cart as you like. After submitting an order, you'll receive an email confirming the order is being processed. You'll also receive a confirmation number that you can use to track your order.

Orders are usually delivered within 3-4 days. Rush orders will be processed the same day.

Helpful tips

1. Order enough stock to meet your needs for 3-4 months.
2. You can save and continue to revise your order up to 15 days. This allows you to combine your needs, order less frequently, and reduce your shipping costs.
3. Search for catalogue items by item number, item name or keywords such as a partial form title.
4. Order quantities according to the packaging indicated in the "Units" column.
5. When re-ordering, a previous online order can be used - just change the quantity if needed.
6. Review your order before submitting it. Once submitted, it cannot be changed.
7. "Restricted" items are designed for a specific user group and must be approved by the SA Distribution Coordinator prior to shipping.

Assistance - there when you need it

An online **"User Manual"** can be found above the **"Administration"** tab.

You can also contact the SA Distribution Coordinator at:

SA.Distribution@gov.ab.ca or (780) 644 1301

Alberta
Service Alberta

Canadian Blood Services
Société canadienne du sang

INTRODUCTION

Canadian Blood Services provides screening of pregnant women, fathers, and newborns for blood groups and red blood cell antibodies under a program funded by Alberta Health Services. This screening provides information to assist physicians, midwives and nurse practitioners in providing appropriate management of the pregnancy and care of the mother and baby.

Testing is provided by Canadian Blood Services in Edmonton for Alberta, the Northwest Territories, Western Nunavut and Lloydminster, Saskatchewan.

Testing provided by Canadian Blood Services:

- ABO/Rh Blood Typing (mother, father, newborn)
- Antibody Screens (mother)
- Antigen typing (father, if mother has a RBC antibody)
- Fetal Bleed screen (mother, following birth or miscarriage if she is Rh negative and baby is Rh positive or unknown)
- Direct Antiglobulin Test (newborn)

For information on Perinatal Testing, please call:

- Supervisor, Perinatal Testing: 780-431-8724
- Diagnostic Services Manager: 780-431-8727

Canadian Blood Services
Société canadienne du sang

Submission of Samples for Testing
(Note: Requisitions (except HS0001-133) and collection tubes may be ordered from Canadian Blood Services. See Section 11 for ordering information.)

1. INITIAL TESTING

ALL PREGNANT WOMEN should have a blood sample sent for blood grouping and red cell antibody screening at their first prenatal visit in every pregnancy.

Requisition - *Use HS0001-133 Prenatal Testing - Initial Screening for Pregnant Women*

(NOTE: This requisition is a two part requisition and includes prenatal screening done by the Provincial Laboratory of Alberta (Microbiology) and by Canadian Blood Services. The requisition is produced and distributed by Alberta Health Services. Because each part of this requisition goes to a separate site, it is critical that both pages be fully completed. Failure to do so could result in testing not being performed.)

Tests performed by Canadian Blood Services: ABO/Rh, RBC Antibody Screen

2. FOLLOW-UP TESTING

2.1 *ALL RH NEGATIVE MOTHERS* – All Rh negative mothers should be tested again at approximately 26 weeks gestation (24-28 weeks is acceptable). Sample must be drawn prior to Rh immune globulin (RhIG) injection. Rh negative women who do not have anti-D present are eligible for RhIG, which should be given at 28 weeks gestation.

Requisition - *Use LL4527 Perinatal Follow-up Testing for Red Blood Cell Serology**

*******Complete and check off the appropriate specimen type.*

Tests performed: ABO/Rh, RBC Antibody Screen

2.2 *RH POSITIVE MOTHERS* – Rh positive mothers who are in their first pregnancy, or who have only ever been tested once previously for ABO and Rh, should be tested again at 26 weeks.

Requisition - *Use LL4527 Perinatal Follow-up for Red Blood Cell Serology**

*******Complete and check off the appropriate specimen type.*

Tests performed: ABO/Rh, RBC Antibody Screen

2.3 *MOTHERS – IF ANTIBODY WAS DETECTED ON INITIAL TESTING* - When a red cell antibody has been detected, its specificity and clinical significance is determined. If the antibody is known to cause hemolytic disease of the fetus and newborn (HDFN), it is recommended that specimens be submitted every four weeks in the first and second trimester and every second week in the third trimester. An antibody titre of 16 or greater is significant; for some antibodies, a lower titre level may also be significant. If there is risk that the baby may be affected by the antibody, the physician/midwife may need to refer the woman to a specialist.

Requisition - *Use LL4527* Perinatal Follow-up Testing for Red Blood Cell Serology**

*******Complete and check off the appropriate specimen type.*

Tests performed: ABO/Rh, Antibody identification and titre (if antibody detected on initial screen)

2.4 *FATHERS* - When a woman has an antibody capable of causing HDFN, specimens from the baby's father will also be requested for antigen typing. This will assist in assessing the probability of the baby being affected by the antibody. Father's samples will not be tested if the woman has no antibodies and is Rh positive.
Requisition - *Use LL4527* Perinatal Follow-up Testing for Red Blood Cell Serology**
***Complete and check off the appropriate specimen type.*

Tests performed: ABO/Rh, Antigen typing (if mother has a RBC antibody)

3. POST-NATAL TESTING

After delivery, specimens from the mother and her baby should be tested if the woman is Rh negative, has a clinically significant antibody, or if the baby shows signs HDFN (i.e. jaundice).

3.1 *MOTHERS* - Collect the mother's specimen approximately one hour following delivery. This will enable any fetal blood to mix thoroughly in the maternal circulation. Midwives or hospitals that do not perform transfusion medicine testing should submit samples to Canadian Blood Services.
Requisition - *Use LL4527* Perinatal Follow-up Testing for Red Blood Cell Serology**
***Complete and check off the appropriate specimen type.*

Tests performed: ABO/Rh, RBC Antibody Screen, Fetal Bleed Screen (following birth or miscarriage if mother is Rh negative and baby is Rh positive or unknown)

3.2 *NEWBORNS* (Cords) - Submitted with mother's specimen as noted above. Clearly identify specimen as a cord sample and, if multiple births, please identify each baby's sample (i.e. Twin A, Twin B). If a cord sample is not available, please submit a heel prick sample. *Cord samples that are not submitted for testing should be retained for 7 days in case the baby shows signs of HDFN later.*
Requisition - *Use LL4527 Perinatal Follow-up Testing for Red Blood Cell Serology**
***Complete and check off the appropriate specimen type.*

Tests performed: ABO/Rh, Direct Antiglobulin Test (DAT)

Send postnatal and cord samples to CBS as soon as possible.

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Specimen Collection

Canadian Blood Services staff members do not collect patient specimens. Pre-natal testing patients should take the requisition to a local laboratory collection site to have the required specimens collected.

Please follow collection instructions on the requisition. It is important to submit the correct tube type and to fill the tubes completely.

Minimum labeling requirements:

- surname and first name,
- PHN or other unique identifying number,
- date of collection,
- and must match information on the requisition EXACTLY.

Record collection information (date, time, collector and collection site) on the requisition. Submit the requisition and specimen(s) as soon as possible.

NOTE: If requisition *HS0001-133 Prenatal Testing - Initial Screening for Pregnant Women* is used, ensure that both pages of the requisition have been filled out completely. Send the EDTA specimen and the bottom copy of the requisition to Canadian Blood Services. Send the gel separator specimen and the top copy of the requisition to the Provincial Laboratory of Public Health.

Specimen Receiving and Testing

The Perinatal Department of the CBS Transfusion Medicine Services Laboratory operates Monday to Friday, 0700-1500h. Routine specimens are accessioned up until 1300h. Testing will begin that day and be completed on the next working day. Postnatal specimens, specimens from women having miscarriages/abortions or specimens marked Urgent/STAT will be accessioned and tested on evenings, weekends and holidays.

Specimens must be accompanied by an appropriate requisition. Specimens submitted with an incorrect requisition may not be tested. The information on the requisition and specimen label must meet minimum requirements. Specimens that are improperly labeled, hemolyzed or are otherwise unsatisfactory may not be tested. The office of the ordering physician or midwife will be informed whenever a specimen will not be tested so that recollection can be done as soon as possible.

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Reports and Recommendations

Results - In most cases, testing will be completed and results will be available the next working day after accessioning. Doctors, midwives and hospitals that wish to receive faxed reports will be set up for automated faxing of their results. Results which are not faxed will be mailed. In the case of patients with antibodies, it may take up to 3 working days for additional testing to be completed.

The report will list results as well as recommendations regarding submission of next sample, eligibility for RhIG (if required), and information about any red cell antibody and its clinical significance.

RhIG Recommendations - follow manufacturer's recommendations for dosage. RhIG is given to Rh(D) negative women that have not formed anti-D. It is given at 28 weeks gestation and after delivery if the baby is Rh(D) positive. It is also given after abortion, threatened abortion, amniocentesis, chorionic villus sampling (CVS), abdominal trauma, ectopic pregnancy, or stillbirth (i.e. any incident that might damage the placenta and allow fetal cells into the maternal circulation).

Red Cell Antibody Recommendations - when an antibody is first detected, the report will indicate whether the antibody is known to cause HDFN or not. If the antibody is clinically significant, an antibody card for the patient will be sent to the ordering physician.

Fetal Genotyping – CBS in Alberta will refer samples for fetal genotyping (by amniocyte DNA) to a molecular testing laboratory. Fetal genotyping will be provided in cases where:

- ✓ the mother has an antibody capable of causing hemolytic disease of the fetus and newborn (HDFN), AND
- ✓ the father is heterozygous for the corresponding antigen (or unknown), AND
- ✓ there has been a previous fetus/newborn affected by HDFN, OR
- ✓ the antibody is anti-K, regardless of titre, OR
- ✓ amniocentesis is being performed for another indication (i.e. advanced maternal age) even if the mother's antibody titre is at a non-critical level.

The high risk maternal fetal clinics in Edmonton and Calgary have the appropriate forms and instructions regarding samples required for fetal genotyping.

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INTRODUCTION

The Transfusion Medicine Services (TMS) Laboratory at Canadian Blood Services, Edmonton, provides transfusion medicine services for a number of hospitals in Alberta health regions that currently do not or cannot perform these tests.

Testing provided:

- ABO/Rh Blood Typing
- Antibody Screens
- Antibody Identification
- Crossmatches
- Phenotyping (Patient and Donor Units)
- Transfusion Reaction Investigations
- Direct Antiglobulin Tests
- Other serological testing as required, as part of serological investigations.

For information on Crossmatch Services, call:

- Supervisor, Crossmatch/Reference: 780-431-8725
- Diagnostic Services Manager: 780-431-8727

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Submission of Samples for Testing

(Note: Requisitions (except HS0001-133) and collection tubes may be ordered from Canadian Blood Services. See Section 7 for ordering information.)

***Requisition** - Use LL4523 Blood Transfusion Service Requisition **OR** LL3001 Transfusion Reaction Investigation*. Specimens must be less than 96 hours old when tested. Patients who have been transfused within the past 3 months or are pregnant must have a specimen for crossmatching drawn within 96 hours prior to the intended transfusion.

Test Requested	Tests Performed	Specimen Required
Crossmatch • Order when red blood cell units are required • Indicate number of units needed • If an in-date Group & Antibody Screen sample is available, an additional sample is not required	▪ ABO and Rh Type ▪ Antibody Screen - performed by solid phase test ▪ Crossmatch - performed by immediate spin method if patient has no antibodies, or by indirect antiglobulin method if patient has antibodies or a blood group discrepancy	2 - 7ml EDTA tubes (purple top) Additional specimen may be required if patient has antibodies.
Group and Antibody Screen • Order when the need for transfusion is not certain • If antibody screen is negative, blood can usually be made available in 10-20 minutes	▪ ABO and Rh Type ▪ Antibody Screen - performed by indirect antiglobulin method ▪ Crossmatch 2 units of red blood cells if antibodies are present – units held for patient	2 - 7ml EDTA tubes (purple top)
Group • Order if requesting platelet or plasma components for patient with no blood grouping result or only one blood grouping result done by CBS on a sample collected for crossmatch or referral investigation • May be ordered to follow a non-group specific bone marrow or stem cell transplant	▪ ABO and Rh Type	1 - 7ml EDTA tube (purple top)
Antibody Screen • Usually ordered as part of type and screen	▪ Antibody Screen - performed by solid phase test	1 - 7ml EDTA tube (purple top) Additional specimen may be required if patient has antibodies.
Direct Antiglobulin Test (DAT) • Usually ordered only when special hematological work-up is being done • May be ordered as a stand alone test	▪ Direct Antiglobulin Test ▪ If positive, will test using anti-IgG and anti-C3d ▪ Eluate will be performed as necessary, based on DAT specificity, transfusion history and transfusion requirements	1 - 7ml EDTA tube (purple top)
Transfusion Reaction Investigation	▪ DAT and ABO/Rh on post-transfusion sample ▪ Check post-transfusion sample for hemolysis ▪ Further investigation will be done, if necessary, to determine if reaction is due to red cell antibodies.	2 - 7ml EDTA tubes (purple top) Pre-transfusion sample, if initial testing was not performed by CBS

Specimen Collection

1. *Check that the patient is wearing an identification band*
   a. Ensure the identification band is physically attached to the patient (i.e. not on the bed, wall, door or chart).
   b. If patient is an outpatient or identity is unknown, follow facility procedure in using either a pre-admission or outpatient hospital ID band or a blood bank identification number (BBIN) band. Instruct the patient that the ID band must not be removed or the crossmatch will be not be valid.

2. *Identify the patient*
   - Compare the patient's legal name, unique ID number(s) (i.e. hospital number, PHN, BBIN) and date of birth with the corresponding information on the requisition. If the patient is an outpatient and not wearing a hospital ID band, then verify identity using government issued photo identification card. Verify PHN using their Alberta Health Care card. The patient information must be identical. If it is not, the discrepancy must be corrected before performing the venipuncture.
   - Ask the patient to spell or verbalise his or her name and birth date. Do not say "Are you…" If the patient is not wearing a hospital ID band or is confused, unconscious or a child, the patient's identity should be confirmed by a member of the nursing team, a physician or a responsible adult who knows the patient.

3. *Draw a venous sample* (use tubes as indicated in table on previous page). Volumes may be adjusted in the case of infants or small children. Contact the TMS lab if further information is required. Do not collect blood samples from a site where intravenous solutions are running as this may invalidate testing.

4. *Label specimens immediately, <u>before leaving the patient's side</u> with:*
   - Patient first and last names
   - PHN or other unique identifying number (date of birth is NOT a unique number)
   - Date of collection (time is also desirable)
   - Blood Bank Identification Number (BBIN), if used
   - Date of birth (optional)
   - "Post-transfusion", if sample is for transfusion reaction investigation.

   - If computer labels are used, check that all information is complete and matches the requisition exactly. If the name is truncated, it must be completed in ink. Recheck that all information on the blood specimens matches the patient's hospital ID bracelet.

   -If an error in labelling occurs while still at the patient's bedside, correct the error immediately by crossing out the item in error and rewriting the appropriate information. All changes should be dated and initialled. Corrections must not be made once the crossmatch specimen has left the bedside; a new specimen must be drawn.

5. *Document collection*. The blood collector must sign the requisition and record date and time of collection. If a second person identified the patient, they must also sign the requisition.

6. *Submit specimens and requisition to the Transfusion Medicine Services Laboratory at Canadian Blood Services as soon as possible*. The back copy of the requisition may be placed on the patient's chart. Notify Canadian Blood Services staff to let them know that specimens are being submitted, and when we can expect them to arrive. This is particularly important for hospitals that are sending specimens by bus or courier. Canadian Blood Services staff will call if specimen is not received as expected.

Specimen Receiving and Testing

The Crossmatch/Reference Area of the CBS Transfusion Medicine Services Laboratory operates 7 days/week from 0700-2400h. Staff may be called in to test urgent requests from 0000-0700h. Specimens that are improperly labeled, hemolyzed or otherwise unsatisfactory will not be tested. The laboratory or nursing unit of the submitting facility will be informed whenever a specimen will not be tested so that recollection can be done as soon as possible.

Reports

Results - For routine testing, results will be available within 4 hours of receipt by the TMS laboratory. If results are needed sooner, please request testing be done as soon as possible (ASAP) for a 2 hour turn around time or STAT for a 1 hour turn around time. In the case of patients with antibodies, more time will be required to complete the investigation and to find compatible units of blood. For non-complex investigations, this may only take a few additional hours. Complex investigations are usually completed within 24 hours of receipt but may occasionally take longer.

Transfusion Recommendations

1. *Clinically Significant Antibodies*- Whenever a clinically significant antibody (capable of causing hemolytic transfusion reactions) is detected or previously known, the report will indicate the need for crossmatch compatible units that are negative for the antigen corresponding to the patient's antibody.

2. *Clinically Insignificant Antibodies* - Sometimes antibodies are detected that may cause difficulty when testing a patient's blood specimen and finding compatible units, but that do not cause hemolytic transfusion reactions. Generally, these patients only require crossmatch compatible units.

3. *Autoantibodies* – Occasionally, patients may have antibodies that react with their own and donor cells. These autoantibodies may or may not show any specificity. While these antibodies usually do not cause increased destruction of the patient's red blood cells, they may mask the presence of clinically significant alloantibodies. Several techniques may be used to try to exclude the presence of alloantibodies. Even if alloantibodies are excluded, the units issued may be incompatible (possibly qualified as 'least incompatible'). If alloantibodies cannot be excluded, the physician will be contacted to determine if transfusion need outweighs the risk of transfusing. If phenotyping of the patient has been done, units that match the patient's phenotyping will be crossmatched to minimize the risk that the patient will develop antibodies to the antigens that are lacking. At times, however, this may not be possible due to time constraints and rarity of blood that matches exactly with the patient's known typings.

4. *Unidentified Antibodies* - Occasionally an antibody may be detected that cannot be identified even though antibodies to major blood group antigens have been excluded. In most cases this will be a clinically insignificant antibody (i.e. anti-P1 or cold agglutinins). However, it is possible that it is a clinically significant antibody that is weak because it is just beginning to develop, or the patient's immune system is not producing it in large quantities. Crossmatch compatible units will be issued.

5. *Previously identified antibody not detected* - If previous antibody is clinically significant, phenotype compatible units will be crossmatched for the patient. When a clinically significant antibody is first detected, an antibody card should be sent for the patient. The patient should present this card whenever s/he is admitted to the hospital, as the strength of the antibody may decrease over time and become undetectable. The history of a clinically significant antibody should be recorded on the requisition to ensure that appropriate blood units are provided.

6. *Special Requirements* - when informed of any special requirements (i.e. anti-CMV negative, irradiated) or history (i.e. bone marrow or stem cell transplant) that may affect the blood components the patient receives, CBS staff inputs this information to our computer system. The computer system then expects units that are being issued to meet the patient's unique criteria.

Crossmatch Expiry

The expiry of a crossmatch is indicated on the patient report and on the tag attached to each unit. The crossmatch expiry is determined based on the patient's history.

1. If the patient has received blood in the past 3 months or is pregnant, the crossmatch expiry will be 96 hours from collection.
2. If the patient has not recently received blood and is not pregnant, the crossmatch expiry can be longer. CBS Edmonton gives an expiry of 7 days from collection in these cases. (Day of collection is day 0).
3. Once the transfusion begins, all units crossmatched with the current sample must be transfused within 96 hours or before the crossmatch expires, whichever comes first.

Transfusion Reactions

Whenever a patient exhibits any signs or symptoms of a transfusion reaction, stop the transfusion, take the patient's vital signs, recheck the identification of the patient and blood products and notify the attending physician. Refer to the Canadian Blood Services TRANSFUSION REACTIONS ALGORITHM and, if required, contact the facility's Transfusion Medicine or Hematopathology Consultant to determine other follow-up actions. Unless the patient is only experiencing a minor allergic reaction:

- Collect and submit specimens with a completed investigation form which documents the transfusion reaction and the measures taken
- Do not restart the transfusion with the current unit or any subsequent units until a Transfusion Medicine or Hematopathology Consultant or CBS Transfusion Medicine Services staff indicates it is safe to do so.

Requisition - *Use LL3001 - Transfusion Reaction Investigation*

If bacterial contamination is suspected, the facility is responsible for sending cultures from the patient and the blood component to the facility's microbiology laboratory. When sending a blood component for cultures, it is helpful to include the patient's name and PHN in order to link the component to the transfusion reaction investigation. Please request that a copy of the culture results be sent to the Medical Director at Canadian Blood Services, Edmonton.

The Transfusion Medicine Services Laboratory at Canadian Blood Services will use the information reported on the Transfusion Reaction Investigation form to report transfusion reactions to the provincial transfusion adverse reaction reporting system as required, and to report any serious adverse reaction to Product Distribution area of Canadian Blood Services.

Emergency Transfusions

If the hospital keeps a stock of unmatched blood, a policy must be in place at the hospital regarding the release of uncrossmatched blood. The requesting physician must sign a declaration that the clinical situation warranted the release and obtain, if possible, the informed consent of the recipient.

If unmatched blood is being requested from CBS for a particular patient, a signed request for release for unmatched blood must be faxed to Canadian Blood Services.
Requisition - *Use LL4678 - Request for Unmatched Blood*

In both cases, a pre-transfusion sample must be collected, following the correct protocol for patient identification. This sample, along with segments from any units transfused to the patient, must be sent to CBS as soon as possible so that crossmatching can be done. Only group O red cell units (ABO confirmed) can be released for transfusion if the blood group has not been determined on the current sample.

If time permits, the pretransfusion sample will be tested and group specific unmatched blood can be issued. Crossmatching using a properly labelled specimen will be completed as soon as possible. Results will be phoned and faxed as soon as available.

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INTRODUCTION

The Transfusion Medicine Services (TMS) Laboratory at Canadian Blood Services, Edmonton, provides serological investigation services for hospitals in Alberta, Northwest Territories, northeastern British Columbia and Lloydminster, Saskatchewan. Samples are submitted for antibody identification and other serological testing. The TMS Laboratory has access to rare cells and anti-sera that may be useful for identifying antibodies to high and low incidence antigens.

Testing provided:

- ABO/Rh Blood Group Discrepancy Resolution
- Antibody Identification
- Phenotyping of Donor Units
- Investigation of Positive Direct Antiglobulin Tests
- Investigation of Hemolytic Disease of Fetus and Newborn (HDFN)
- Fetal Bleed Screening of Rh Negative Women
- Other serological investigation as requested.

For information on Referral Services, call:

- Supervisor, Crossmatch/Reference: 780-431-8725
- Diagnostic Services Manager: 780-431-8727

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Submission of Samples for Testing

(Note: Requisitions (except HS0001-133) and collection tubes may be ordered from Canadian Blood Services. See Section7 for ordering information.)

Requisition –

Hospitals performing routine crossmatches use LL4800 Serological Investigation – Referral Requisition
Hospitals sending routine crossmatches to CBS use LL4523 Blood Transfusion Service Requisition

For antibody investigations, ensure adequate sample is sent to complete the investigation. Include test results along with screen cell and panel antigrams. Indicate test method used. Patient transfusion history and previous history of antibodies is important information for our investigation.

If sending segments from hospital inventory, please record unit number and segment number on the requisition.

Test Requested	Tests Performed	Specimen Required
Antibody Identification	▪ ABO and Rh Type ▪ Antibody Screen ▪ Antibody panels - to identify antibody specificity ▪ Phenotyping - of patient and donor units ▪ Crossmatch - only performed if antibody not clear cut and hospital may have difficulty obtaining crossmatch compatible units from their inventory	2 - 7ml EDTA tubes (purple top)
Group Discrepancy	▪ ABO and Rh Type ▪ Antibody Screen ▪ Antibody Identification, if required ▪ Other techniques, as required	2 - 7ml EDTA tubes (purple top)
Positive Direct Antiglobulin Test	▪ Antibody Identification, if required ▪ DAT using anti-IgG and anti-C3d ▪ Eluate – depending on DAT specificity, transfusion history and transfusion requirements	2 - 7ml EDTA tubes (purple top)
Hemolytic Disease of Fetus and Newborn (HDFN)	▪ Mother - ABO and Rh Type, Antibody Screen, Antibody Identification, if required ▪ Baby - ABO and Rh Type, DAT ▪ Eluate - only done on baby's sample if ABO incompatibility or presence of antibody in mother's plasma does not provide explanation for positive DAT	Mother: 1 - 7ml EDTA tubes (purple top) Baby: cord sample (red top) or heel prick sample (EDTA)
Fetal Bleed Screen	▪ Rosette Test ▪ If positive or invalid, or if the sample is >2 days old at the time of receipt, CBS will refer out for Kleihauer-Betke acid-elution test	1 - 7ml EDTA tube (purple top)
Transfusion Reaction Investigation	▪ Follow up of positive DAT result (i.e., eluate) ▪ Antibody identification, if required ▪ Further investigation will be done, if necessary, to determine if reaction is due to red cell antibodies.	2 - 7ml EDTA tubes (purple top)
Phenotyping Donors	▪ Antigen typing as required	Segments from hospital units, if available

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Specimen Collection

It is expected that specimens submitted will have been collected using proper identification procedures. (See Section 8, pg. 3 as an example/for details.) Specimens should be labeled with first and last name, PHN or other unique identifying number, and date of collection. Notify Canadian Blood Services staff to advise them that specimens are being submitted, how and when they can be expected to arrive. (This is particularly important for hospitals that are sending specimens by bus or courier.) Canadian Blood Services staff will call back if the specimen is not received at the expected time.

Specimen Receiving and Testing

The Crossmatch/Reference Laboratory operates 7 days/week from 0700-2400h. Staff may be called in to test urgent requests from 0000-0700h.

Specimens that are hemolyzed or are otherwise unsatisfactory will not be tested. The laboratory or nursing unit of the submitting facility will be informed whenever a specimen will not be tested so that recollection can be done as soon as possible. Specimens that are improperly labelled may be tested but a comment will be added to the report regarding the labelling error. The submitting hospital is responsible for crossmatching for the patient including the proper collection and identification of samples collected.

Canadian Blood Services, Edmonton, currently uses solid phase testing for antibody screening and PEG indirect antiglobulin method for compatibility testing. Other tube methods can also be performed. At this time, gel methods are not available. When possible, the test method used by the hospital laboratory referring the sample will be used. Otherwise, the routine method used by Canadian Blood Services, Edmonton, is used.

Canadian Blood Services, Edmonton, does not assume any responsibility for the crossmatching of patient samples received from hospitals that perform their own routine crossmatches. As well, transfusion recommendations for difficult cases (i.e. panreactive antibody, autoantibody) cannot be made by CBS. The facility should have their own guidelines or must consult with their pathologist or transfusion medicine consultant.

When a clinically significant antibody has been identified, antigen negative units will be sent to the hospital if the hospital is unable to phenotype units from their inventory. When a weak, unidentified antibody is detected and the hospital may have difficulty finding crossmatch compatible units among their own inventory, units may be matched at Canadian Blood Services prior to issuing these units to the hospital. The report will state that these units appeared to be crossmatch compatible. The receiving hospital is responsible for crossmatching these units prior to transfusion. The issue voucher/packing slip may indicate that the units are for a particular patient but the units are not being issued as 'crossmatched'. **Canadian Blood Services does not tag units as being crossmatch compatible when issued to a hospital as a result of a referral investigation**.

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Reports

Results - Investigations for patients requiring blood are given high priority. Non-complex investigations may only take a few hours from receipt, but complex investigations may take up to 24 hours or longer. If blood is required, reports will be phoned and a preliminary report will be faxed or included when blood is sent for the patient. After a supervisor reviews the investigation, a final report is prepared, then faxed or mailed.

Report Comments

1. *Clinically Significant Antibodies*- Whenever a clinically significant antibody is detected or previously known, the report will indicate the identity of the antibody and its significance. If required, units that are negative for the corresponding antigen will be shipped to the facility for crossmatching. When a clinically significant antibody is first detected, an antibody card will be sent for the patient. The patient should present this card whenever s/he is admitted to the hospital as the strength of the antibody may decrease over time and become undetectable.

2. *Clinically Insignificant Antibodies* - Sometimes antibodies are detected that may cause difficulty when testing a patient's blood specimen and finding compatible units, but that do not cause hemolytic transfusion reactions. The report will indicate the identity of the antibody and its significance. Hospitals should be able to crossmatch additional units from their inventory to find compatible units.

3. *Autoantibodies* – Occasionally, patients may have antibodies that react with their own and donor cells. These autoantibodies may or may not show any specificity. While often these antibodies do not cause increased destruction of the patient's red blood cells, they may mask the presence of clinically significant alloantibodies. Several techniques may be used to try to exclude the presence of alloantibodies. Even if alloantibodies are excluded, all units crossmatched may be incompatible. If the patient's phenotype is known and antibodies to some clinically significant antibodies cannot be excluded, phenotyped matched units may be requested. Ultimately, the decision to transfuse and the recommendations regarding which units to transfuse must be made by the facility's pathologist or transfusion medicine consultant.

4. *Unidentified Antibodies* - Occasionally an antibody may be detected that cannot be identified even though antibodies to major blood group antigens have been excluded. In most cases this will be a clinically insignificant antibody (i.e. cold agglutinins). However, it is possible that it is a clinically significant antibody that is weak because it is just beginning to develop, or the patient's immune system is not producing it in large quantities. Units which appear to be crossmatch compatible will be shipped to the facility for crossmatching.

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INTRODUCTION

Canadian Blood Services provides a number of other services for hospitals. These are:

- Testing of Hospital Walk-In Blood Donors and Autologous Donors
- Stem Cell Collection and Processing
- IgA/Anti-IgA Testing of Patients

See the following pages for additional information on each of these services.

Services NOT provided include:

- Blood & Body Fluid Exposure Testing - contact your physician, local Board of Health or follow your institution's policy when exposed to blood or body fluids. The Provincial Laboratory for Public Health (Alberta) performs testing for transmissible diseases.
- Cord Blood Bank - contact the Alberta Cord Blood Bank at (780) 492-2673
- Erythropoietin Levels - Previously performed by a research laboratory located in the Canadian Blood Services building in Edmonton. There is currently no laboratory providing this testing.

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TESTING OF HOSPITAL WALK-IN DONORS AND AUTOLOGOUS DONORS

Hospitals that establish walk-in blood donor or autologous donor programs at their facility are responsible for creating procedures and policies for these programs that comply with the Canadian Standards Association Z902 standards. CBS Edmonton will provide testing of walk-in and autologous blood donors to hospitals that have the met the requirements for establishing this type of program.

Submission of Samples for Testing

(Note: Requisitions (except HS0001-133) and collection tubes may be ordered from Canadian Blood Services. See Section 11 for ordering information.)

***Requisition** – Use F040047 Laboratory Test Request* Label samples with donor's surname and first name, date of birth, PHN, date of collection. Information on sample must match Laboratory Test Request exactly. (Note: Incorrectly labeled samples will not be tested.) Ensure that the following is included: hospital name, city, province, sample type, collection information including date of collection and phlebotomist signature, and test(s) requested.

Collect two 7ml (13x100mm) EDTA samples and one 7 ml (13x100mm) clotted sample (red top tube, not serum separator tube). This number and size of tube must be collected in order to accommodate our automated testing equipment and workflow.

Submit samples to CBS Edmonton between Monday morning and Thursday noon. If a walk-in donor has donated a unit of blood that has been transfused to a patient, samples should be submitted immediately.

Tests Performed

Hospital Walk-In Blood Donor - samples will be tested for ABO, Rh, red blood cell antibodies, syphilis, HBsAg, anti-HBc, anti-HIV1/HIV2, anti-HCV and anti-HTLVI/II. Nucleic Acid Testing (NAT) for HCV, HIV and WNV is not performed on these samples as there are strict sample storage and shipping requirements that we cannot confirm have been met for referred samples.

Hospital Autologous Donor - samples will be tested for HBsAg, anti-HBc, anti-HIV1/HIV2, anti-HCV and anti-HTLVI/II. Nucleic Acid Testing (NAT) for HCV, HIV and WNV is not performed on these samples. Testing for ABO/Rh, red blood cell antibodies and syphilis is also not performed.

If any test for a transmissible disease marker is repeat reactive, the sample will be sent for confirmatory testing.

Reports

Results of each test will be recorded on the form and will be mailed and/or faxed within a week of submission date. Hospitals are responsible for determining if the donor is suitable to donate, based on test results and other criteria established by their program. If a test for a transmissible disease marker is repeat reactive and the donor has donated a unit of blood for transfusion, the hospital will be notified immediately. Canadian Blood Services will forward names of donors that are confirmed to be positive for a transmissible disease that must be reported to the Medical Officer of Health for the region and to Alberta Services.

Resources for creating a hospital- based donor program

Information about creating a hospital-based donor program can be accessed from the Canadian Blood Services website, the Canadian Standards Association (CSA), the Canadian Society for Transfusion Medicine (CSTM), and/or the American Association of Blood Banks (AABB). Contact information for these organizations can be found in Section 5, pages 2 – 4.

2. Autologous Stem Cell Collection and Processing

The Canadian Blood Services Stem Cell Program located in Edmonton performs collection, processing and storage of Autologous Peripheral Blood Stem Cells (Hematopoietic Progenitor Cells-Apheresis) and processing and storage of Autologous Bone Marrow (Hematopoietic Progenitor Cells-Marrow). Our primary customer in Edmonton is the Cross Cancer Institute and the program is administered in very close consultation with this institution.

Accessing the Program

Contact appropriate staff for details regarding program access. Traditionally this is accomplished through physician referral.

Products

Autologous Hematopoietic Progenitor Cells, Apheresis-Cryopreserved
Autologous Hematopoietic Progenitor Cells, Marrow-Cryopreserved

Report of product quality is provided to attending physicians on completion of collection and subsequent product quality testing. Quality measures include product CD34+ content and viability, hematopoietic progenitor cell culture and assay (Colony Forming Unit Assay), sterility and volume.

Product is removed from storage, transported to infusion site (Cross Cancer Institute) and thawed for infusion on the request of the attending physicians.

For Information about the Stem Cell Program, call 780-702-8816.

Canadian Blood Services
Société canadienne du sang

3. IgA/Anti-IgA Testing

Approximately 1% of the general population is known to have low levels of IgA, with normal or near normal levels of both IgG and IgM. About 35% of IgA deficient individuals may develop antibodies to IgA. IgA deficient patients who have developed class-specific anti-IgA antibodies may experience anaphylactic reactions to plasma products or blood components containing IgA. IgA deficient individuals are classified into two categories by an ELISA test validated to measure IgA levels of 0.05mg/dL in order to detect true IgA deficiency:

1. IgA levels less than 0.05mg/dL and **do not** have antibodies to IgA present
2. IgA levels less than 0.05mg/dL and **have** antibodies to IgA present

Patients in the second category must receive blood components that lack IgA. Patients who have experienced an anaphylactic reaction and are awaiting testing results should also be considered for IgA deficient blood products. The CBS Medical Director may be consulted on the need to give IgA deficient blood components to these patients. Patients that are IgA deficient but have no antibodies do not require IgA deficient blood components.

Testing of patients with suspected IgA deficiency for the presence of anti-IgA antibodies is available through Canadian Blood Services. Specimens received at Canadian Blood Services Centres are forwarded to the CBS Protein Testing Laboratory in Ottawa. Currently, these samples are referred to the National Reference Laboratory of the American Red Cross (ARC) in Philadelphia.

Accessing the Program

Requisition - *Use F400263 Request for Patient IgA/Anti-IgA*

Please also provide patient's diagnosis, transfusion history including date of most recent transfusion, need for blood components and urgency of request (life-threatening, ASAP, Routine, for Surgery). If a serum IgA level is available, this should be provided as well.

1. Obtain a minimum of 2-4 ml of serum, separated from clot.
2. Label the specimen with surname and first name, a unique identifier (PHN, hospital number) and date of collection. Ensure that information on the specimen label exactly matches information on the form.
3. Submit sample to Canadian Blood Services, Edmonton, Attention: Quality Control Lab.

Reports

Test results may take 4 weeks or longer. Telephone reports may be made if requested. Results will be mailed to address on request form.

For information about IgA/Anti-IgA testing, call:

- ***For Samples:*** ***780-431-8720 (Quality Control Laboratory)***
- ***For Results:*** ***780-431-8712 (Lookback/Traceback Supervisor)***

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1.2	Hospital Customer Feedback Alberta/NWT[#]……	LMF022
3.3	Blood Component Order Form……..	F040547
3.3	Special Request Order Form……..	1000103465
3.3	Plasma Protein Products Order Form……..	N/A
4.2	Returned Blood Products*……..	LL4303
4.2	TMS Returned Blood Components**……	LL4583
4.2	Returned Plasma Protein Products*……	LL4231
4.3	Hospital Disposition of Blood Components**……	LL4635
5.6	Report of Serious Adverse Reaction*……..	LL4454
6.1	Notification of Component Recall/Withdrawal…….	1000103659
7.2	TMS Request for Blood Components**……	LL4584
7.2	Supply Order Form……..	LL1065
8.2	Prenatal Testing-Initial Screen for Pregnant Women** *…	HS0001-133
8.2	Perinatal Follow-up for Red Blood Cell Serology…….	LL4527
9.2	Blood Transfusion Service Requisition**……	LL4523
9.2	Transfusion Reaction Investigation**……	LL3001
9.5	Request for Unmatched Blood**……	LL4678
10.2	Serological Investigation – Referral Requisition*…….	LL4800
11.2	Laboratory Test Request……	F040047
11.4	Request for Patient IgA/Anti-IgA……	F400263

[#]Calgary customers only
**Edmonton customers only*
***Edmonton TMS Crossmatch customers only*
****Available only from Alberta Health. See pg. 7.2.*

Forms available on-line at www.blood.ca. See pg. 7.2

NOTES